

become loosened from the upper part of the mountains, and fall in extensive landslips down the sides. These landslips or rockslips are so numerous, that in fine weather they are most conspicuous objects on the sides of the hills, and look like dry water-courses. One of these rockslips I witnessed at Cape Grafton, from a distance of three miles. The noise was terrific, and the ground trembled as though from an earthquake. On examining the blocks of granite which had slipped to the bottom of the ravine, I found many of them with their sides grooved and scratched, and one fragment was as beautifully polished on one side as if it came from the hands of a lapidary, excepting, of course, the scratches and grooves. In the course of a few centuries, much of the range will be worn away, and its sides represented by an alluvial deposit mainly consisting of angular boulders of every size and shape, many of which will be polished, scratched, and grooved. There are very few geologists who would not call it a glacial drift, even now, were not the cause so evidently before them. Will this help to explain the so-called drifts, which, like this instance, are found far within the tropics?

T. E. TENISON-WOODS

Union Club, Sydney, N.S.W., March 25

Variability of Number of Sepals, Petals, and Anthers in the Flowers of *Myosurus minimus*

IN my article on "Different Modes of Self-fertilisation where Visits of Insects are wanting" (NATURE, vol. x. p. 129), I gave a short account of the number of sepals, petals, and anthers in a hundred flowers of *Myosurus minimus* examined by myself. Some error must, however, have slipped into this account, the sum of the quoted flowers differing from a hundred. I have, therefore, lately repeated my examination and give here the results. In 200 flowers I now found 35 different proportions in the number of sepals, petals, and anthers. These were contained in—

Flowers	Sepals	Petals	Anthers	Flowers	Sepals	Petals	Anthers
1 ... 4 ... 3 ... 4	2 ... 5 ... 5 ... 3	c					
1 ... 4 ... 3 ... 6	3 ... 5 ... 5 ... 4						
6 ... 5 ... 2 ... 3	7 ... 5 ... 5 ... 5						
4 ... 5 ... 2 ... 4	7 ... 5 ... 5 ... 6						
1 ... 5 ... 2 ... 5	4 ... 5 ... 5 ... 7						
1 ... 5 ... 2 ... 6	3 ... 5 ... 5 ... 8	a					
1 ... 5 ... 3 ... 2	1 ... 6 ... 2 ... 5						
4 ... 5 ... 3 ... 3	1 ... 6 ... 2 ... 6						
10 ... 5 ... 3 ... 4	1 ... 6 ... 2 ... 7						
23 ... 5 ... 3 ... 5	1 ... 6 ... 2 ... 8						
23 ... 5 ... 3 ... 6	1 ... 6 ... 2 ... 10						
24 ... 5 ... 3 ... 7	1 ... 6 ... 3 ... 7						
9 ... 5 ... 3 ... 8	1 ... 6 ... 5 ... 7						
1 ... 5 ... 3 ... 9	1 ... 7 ... 2 ... 7						
6 ... 5 ... 4 ... 4	1 ... 7 ... 3 ... 6						
7 ... 5 ... 4 ... 5		b					
16 ... 5 ... 4 ... 6							
14 ... 5 ... 4 ... 7							
2 ... 5 ... 4 ... 8							
1 ... 5 ... 4 ... 9							

In general, the number of sepals, petals, and anthers increases and decreases with the size of the flower, the 12 first quoted flowers being exceedingly dwarfish ones.

It should further be considered that in combination with a certain number of sepals and petals a certain number of anthers seems to be the normal one, and from this normal (maximum) number of anthers, as to be seen under *a*, *b*, *c*, the numbers of flowers on the two opposite sides are constantly decreasing.

Lippstadt, May 16

HERMANN MÜLLER

"A Dead Heat"

TELEGRAMS from Paris on Monday state that the "Prix du Jockey Club" had resulted in what is usually called a "dead heat." It is unnecessary for me to inform you, that there can be no such thing as a "dead heat." It is called so, I suppose, in consequence of a disagreement among the judges as to which horse first thrusts his nose beyond the winning-post. Are living judges any longer necessary to determine the results of a race? Five years ago I proposed to prove by indisputable evidence the winner of a trotting match which, in consequence of a dispute among the judges, had to be trotted over again. By means of a single thread stretched across the track, and invisible to either horses or their riders, twenty

photographic cameras have been made to synchronously record positions impossible for the eye to recognise. With the aid of photography, the astronomer, the pathologist, the chemist, and the anatomist are enabled to pursue the most complex investigations with absolute confidence in the truth it reveals; why should those interested in trials of speed not avail themselves of the same resources of science? I venture to predict, in the near future that no race of any importance will be undertaken without the assistance of photography to determine the winner of what might otherwise be a so-called "dead heat."

449, Strand, W.C., May 23

EDWARD MUYBRIDGE

Aurora Borealis

THE auroral display mentioned by your two correspondents was particularly brilliant at Oldham on the evening of the 14th inst., at 11.10. I observed at 11.15 one very fine streamer reaching quite to the Pole Star; it was of a ruddy hue, dull, and changing to purple. The horizon was cloudy, the cloud being fringed with white light, changing to rose colour. The constellation Cassiopea was at times covered with a mass of light, from whence the streamer arose, lighting up the whole of the northern sky.

Oldham

W. PULLINGER

Bright Meteors

1882, May 16, 11h. om. G.M.T. Meteor many times brighter than Venus; green, then white; began of second magnitude, 5° above main cluster of *Coma*; passed 1½° above *Iota Urs. Maj.*, where it changed colour suddenly; ended, of second magnitude, 5° left of *Beta Aurigæ*. Duration 8 seconds, may have been 10. No streak. Observed from the University Observatory. A few minutes later another was seen describing very nearly the same path.

Oxford

G. L. TUFMAN

Curious Formation of Ice

IN your issue of November 24, 1881 (vol. xxv. p. 78) Mr. J. F. Duthie described small wafer-like, rather funnel-shaped pieces of ice which he noticed in October, on the slopes of the Himalayas, and asked whether such forms of ice had been observed elsewhere.

On November 30, 1881, I observed, at a height of about 7000 feet, near the hill station of Chakrata, on the outer Himalayas, ice crystals which were grouped in bundles about one inch long and one inch in diameter. The bundles consisted of prisms up to a quarter of an inch diameter, and looked at from the side the long parallel prismatic faces, and the short rectangular outlines of the ends of the prisms suggested rather the orthorhombic system of crystallisation. On looking straight at the end of the crystals, it was, however, seen that all the prisms were hexagonal, and that they ended in hollow hexagonal pyramids, thus bringing out clearly the hexagonal system of crystallisation to which ice belongs.

The hollow hexagonal pyramids showed further development in other portions of the hoar frost, and there seems very little doubt that what Mr. Duthie describes were accumulations of small crystals originally grouped in the shape of hexagonal hollow pyramids, but more or less expanded and rounded off.

I may here mention another interesting occurrence of crystals which I had the opportunity of noticing at the salt works in Che-hire. During slow evaporation of brine in a steam-heated reservoir, crystals of salt formed at the surface in the shape of hollow hexagonal pyramids. This is easily explained. Whilst the ordinary well-known hollow salt pyramids with square base form, by the gradual sinking and growth of a cubical nucleus which floats with one pair of faces horizontally placed, these exceptional hexagonal pyramids form from an original cube which floats on the water with a solid angle as its lowest point. The six lateral edges are the beginning of the hexagonal pyramids.

H. WARTH

Dehra Dun, N.W. Provinces, East India, April

The Existence of a Voice in Lizards

THE following may perhaps be of some interest in connection with the letter of Prof. Th. Eimer (vol. xxvi. p. 29). One evening as I sat in the verandah of my house in Madras, my attention was called by a peculiar cry, and on looking

up I saw that it was being made by a small lizard, apparently in a state of great terror at a snake which was uncoiling itself from the rafters close to it. I cannot say what the species of the lizard was, but it was one of those so abundant on the walls of Indian houses; it was one of two that appeared every evening, when the lamp was brought out into the verandah, and feasted on the moths attracted by the light. C. MICHIE SMITH

20, Duke Street, Edinburgh, May 5

THE ECLIPSE EXPEDITION

THE *Daily News* of Tuesday publishes the following communication from its special correspondent with the English Eclipse Expedition:—

On the Nile, between Siout and Sohag, May 6

The astronomers have now nearly reached their destination if all goes well, but it is by no means certain that everything will, for the Nile has never been known to be so low, and we have already been aground many times. To-morrow morning will see them and their instruments landed after their last water journey. The arrangements made by the Egyptian Government and by His Highness the Khedive himself, who takes the liveliest personal interest in the work, have been simply perfect. Everything seems to have been foreseen, every possible cause of delay obviated, and everything that could conduce in any way either to the comfort of the observers or the success of the observations provided. One officer of the Egyptian Government or another has been in constant attendance upon the expedition since they landed at Suez, and any indication of a desire that a certain course of action should be taken has been at once attended to. There is no shutting one's eyes to the fact, that there are many men occupying high positions in this wonderful country, through which we are now journeying, who take the keenest interest in scientific progress, and who are more than anxious, that Egypt should take her place among the more highly civilised nations, among whom science is cultivated to a greater or less extent; and there can be little doubt, that the efforts now being made to educate the people will in time bear more fruit of this soil. It is quite *apropos* to this train of thought to mention, that the fact that the admirably equipped observatory of Cairo will count for very little among the proposed observations is keenly felt. It must not, however, be imagined that because the metropolitan observatory counts for so little, Egypt possesses no astronomers. I mentioned in a former letter that it was hoped that Ismatt Effendi, a member of the Khedive's household, might be attached to the expedition. When the expedition reached Suez and the *Kaisar-i-Hind* steamed into the harbour, it was easy to see that something unusual was going on there. The Khedive had not only sent Ismatt Effendi to receive the expedition, but had sent orders to the Governor of Suez to welcome it in his name. Nor was this all. A special train had been provided for the instruments and observers, and every precaution taken for safe handling and safe custody of the former. In the morning the Governor of Suez speeded the parting guests, who were accompanied by M. Ismatt, and this gentleman soon showed how much he had profited by the long training he has received in the observatories of Paris and Washington, and it was soon acknowledged that in him the expedition not only found a most useful and agreeable companion, but a collaborator of the highest value.

On arrival at Cairo the party found General Stone, chief of the staff, accompanied by Moktah Bey, on the platform to welcome them. Of the former, it may be said that his influence for good on the higher education in Egypt and on the officers who have served under him is freely acknowledged. He has lost none of the enthusiastic love of truth for its own sake, and of science for the sake of the world, which characterises so many of the best of his countrymen; and many of his remarks touching his

conception of the duty incumbent on the Government of Egypt, in aiding a work of international aim, strongly reminded me of General Sheridan's thoughts and words when he received at Washington one of the English observers of the eclipse of 1878. Moktah Bey, who has been detailed to accompany the expedition, is an officer who has greatly distinguished himself by his travels in the Soudan. He is not only an admirable administrator, but a capital linguist, while his love of work in the Soudan and in Upper Egypt in triangulation, determining latitudes and longitudes, and establishing, or endeavouring to establish, meteorological observatories, nilometers, and the like, render him also a valuable scientific ally.

General Stone, on the arrival of the instruments at Cairo, cut a Gordian knot by at once ordering the car containing them to be ferried across the Nile. There is no railway bridge over the Nile at Cairo, so that considerable time was saved and risk avoided by this measure. In fact it may be said that not only were the cases containing the instruments untouched from Suez to Siout, but that they were actually sealed up all this time. There was not much time to give to the strange sights and old memories of Cairo; even the Pyramids have remained unvisited so far, for after resting one night and spending part of the next day in official visits, the party was off again yesterday and travelled during the night down to Siout, the most southerly railway station in Egypt, and about 70 miles north of the point where the eclipse line crosses the Nile. At Siout, whither extra camels and porters had been summoned by telegraph, the sight at sunrise this morning was strange beyond all description, or at all events beyond the descriptive powers of your present correspondent. The telescopes to be used on the present occasion are of very great weight, and although they have been divided into as many separate pieces as possible, some of the cases are still very heavy, taxing the powers both of men and camels to the utmost. The camels, which were made to kneel down so soon as the cases had been got out of the railway car, groaned as they rose with such an unaccustomed weight; and giant Arabs, good-natured sons of Hercules, did the rest at the boat side. But here again a special arrangement was necessary. The Nile is so low and the steamer was already so crowded that the instruments were placed in a special boat taken in tow by the steamer. Events have shown that this precaution was by no means an improper one, for during the last hour and a half we have been firmly aground, and it does not seem as if all the shouting of the motley crew, or any manœuvring of the engine is going to get us off again. While these attempts, which seem born of confusion, are wearing themselves out, it will be as well to say a word about the final arrangements, so far as they are known to us, before we actually arrive at the station.

There are three expeditions in Egypt for observing the eclipse—a French, an English, and an Italian one. As there is so little choice of station, his Highness the Khedive has sent forward a steamer to Sohag, the point at which the eclipse track crosses the Nile, and has invited the various expeditions to use this as a *point d'appui* and floating hotel wherever their actual place of observation may be. Prof. Tacchini forms part of the Italian party, and MM. Thollon and Trépied of the French one. The latter have gone on ahead, and it is thought that their instruments are already up and adjusted, while the Italian party follows us on Monday. It is believed that the work of both of these parties will be chiefly spectroscopic. As the exposure of Capt. Abney's plates forms an important part of the English plans, it is intended to take special precaution for securing the photographic rooms and tent from dirt. With the same object in view covers have been prepared for the telescopes, which closely fit them and can be kept, it is fondly hoped, sand-tight. This brings me to say a word about the khamseen. The season this year